

CLAIMS

1. Method for setting up or resp. releasing a connection between a first terminal (DLAN1) connected to a local area network (LAN) and a second terminal (DATM) connected to an ATM-network, said ATM network and said local area network being coupled by a network termination apparatus (ANT), said method including a step of generating by said network termination apparatus (ANT) a connection set-up request, or resp. a connection release request message for requesting to set up, resp. to release, said connection,

characterised in that

- said connection set-up request, resp. said connection release request message is a local area network message, which is transmitted towards a predetermined terminal (DLAN3) connected to said local area network and adapted to terminate an ATM signalling protocol,

- whereby upon receipt of said connection set-up request, resp. said connection release request message by said predetermined terminal (DLAN3), at least one ATM message (ATMMC1) of said ATM signalling protocol for setting up (ATMMC1), resp. releasing (ATMRELMC1) said connection, is generated and transmitted from said predetermined terminal to said ATM network via said network termination apparatus (ANT).

2. Method for setting up or resp. releasing a connection between a first terminal (DLAN1) connected to a local area network (LAN) and a second terminal (DATM) connected to an ATM-network, said ATM network and said local area network being coupled by a network termination apparatus (ANT), said method including a step of generating a connection set-up (LANRC1) request, or resp. a connection release (LANRELR1) request message for requesting to set up, resp. to release, said connection,

characterised in that

said connection set-up request (LANRC1), or resp. said connection release (LANRELR1) request message is a local area network message which is generated by said first terminal (DLAN1),

- whereby said connection set-up request (LANRC1), resp. said connection release request (LANRELC1), message is transmitted towards a predetermined terminal (DLAN3) connected to said local area network and adapted to terminate an ATM signalling protocol,

5 - whereby upon receipt of said connection set-up request (LANRC1), resp. said connection release request (LANRELC1) message by said predetermined terminal (DLAN3), at least one ATM message (ATMMC1) of said ATM signalling protocol for setting up (ATMMC1), resp. releasing (ATMRELMC1) said connection, is generated and transmitted from said predetermined terminal
10 to said ATM network via said network termination apparatus (ANT).

3. Method according to claim 1

characterised in that

said first terminal (DLAN1) is said predetermined terminal (DLAN3).

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4. Method according to claim 1 or claim 2 or claim 3

characterised in that

- said at least one ATM message for setting up (ATMMC1), resp. for releasing (ATMRELMC1) said connection, is first converted by said predetermined
20 terminal (DLAN3) into at least one corresponding local area network message for setting up (LANMC1), resp. for releasing (LANRELMC1) said connection, for further transmission to said network termination apparatus (ANT).

- whereby said at least one corresponding local area network message for setting up (LANMC1), resp. for releasing (LANRELMC1) said
25 connection, is further reconverted by said network termination apparatus (ANT) into said at least one ATM message of said ATM signalling protocol for setting up (ATMMC1) , resp. for releasing (ATMRELMC1) said connection, for further transmission to said ATM network.

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5. Method according to claim 4

characterised in that

- at least one ATM returning message of said ATM signalling protocol for setting up (ATMRMC1), resp. for releasing (ATMRRELMC1) said connection, is transmitted from said ATM network to said network termination apparatus (ANT),

- 5 - whereby said at least one ATM returning message for setting up (ATMRMC1), resp. for releasing (ATMRRELMC1) said connection, is first converted within said network termination apparatus (ANT) into at least one corresponding local area network returning message for setting up (LANRMC1), resp. for releasing (LANRRELMC1) said connection, for further transmission to
- 10 said predetermined terminal (DLAN3).

6. Method according to claim 5
characterised in that

- said at least one corresponding local area network returning message
- 15 for setting up (LANRMC1), resp. for releasing (LANRRELMC1) said connection, is further reconverted within said predetermined terminal (DLAN3) into said at least one ATM returning message of said ATM signalling protocol for setting up (ATMRMC1), resp. releasing (ATMRRELMC1) said connection.

20 7. Method according to claim 5
characterised in that

- upon receipt of said at least one corresponding local area network returning message for setting up (ATMRMC1), resp. for releasing (ATMRRELMC1) said connection, by said predetermined terminal (DLAN3), at least one following
- 25 ATM message of said ATM signalling protocol for setting up (ATMFMC1), resp. releasing (ATMFRELMC1) said connection is generated and transmitted from said predetermined terminal (DLAN3) to said ATM network, whereby the steps as described in claim 4 are repeated by replacing said at least one ATM message by said at least one following ATM message, and said at least one corresponding
- 30 local area network message by at least one following corresponding local area network message.

8. Method for setting up, or resp. releasing a connection between a first terminal (DLAN1) connected to a local area network (LAN) and a second terminal (DATM) connected to an ATM-network, said ATM network and said local area network being coupled by a network termination apparatus (ANT), said method including a step of transmitting from said second terminal (DATM) towards said ATM network (ATM) a request for setting up (ATMRC2), resp. releasing said connection (ATMRELRC2), said method including a next step of transmitting from said ATM network (ATM) to said network termination apparatus (ANT), at least one ATM message of an ATM signalling protocol for setting up (ATMMC2), resp. releasing (ATMRELMC2), said connection, characterised in that

said at least one ATM message of said ATM signalling protocol for setting up (ATMMC2), resp. releasing (ATMRELMC2) said connection, is converted within said network termination apparatus (ANT) into at least one corresponding local area network message for setting up (LANMC2), resp. releasing (LANRELMC2) said connection, for further transmission from said network termination apparatus (ANT) towards a predetermined terminal (DLAN3) connected to said local area network and adapted to terminate said ATM signalling protocol,

-whereby upon receipt of said at least one corresponding local area network message for setting up (LANMC2), resp. releasing (LANRELMC2), said connection, by said predetermined terminal (DLAN3), at least one returning ATM message of said ATM signalling protocol for setting up (ATMRMC2), resp. releasing (ATMRRELMC2), said connection is generated by and transmitted from said predetermined terminal (DLAN3) to said ATM network, via said network termination apparatus (ANT).

9. Method according to claim 8 characterised in that

said first terminal (DLAN1) is said predetermined terminal (DLAN3).

10. Method according to claim 8 or 9

characterised in that

5 said at least one corresponding local area network message for setting up (LANMC2), resp. releasing (LANRELMC2) said connection is further reconverted within said predetermined terminal (DLAN3) into said at least one ATM message for setting up (ATMMC2), resp. releasing (ATMRELMC2) said connection.

10 11. Method according to claim 8 or 9 or 10

characterised in that

- said at least one returning ATM message for setting up (ATMRMC2), resp. releasing (ATMRRELMC2), said connection, is first converted by said predetermined terminal (DLAN3) into at least one corresponding returning
15 local area network message for setting up (LANRMC2), resp. releasing (LANRRELMC2), said connection, for further transmission to said network termination apparatus (ANT),

- whereby said at least one corresponding returning local area network message for setting up (LANRMC2) resp. releasing (LANRRELMC2) said
20 connection, is further reconverted by said network termination apparatus (ANT) into said at least one returning ATM message of said ATM signalling protocol for setting up (ATMRMC2), resp. releasing (ATMRRELMC2) said connection, for further transmission to said ATM network.

25 12. Method according to claim 11

characterised in that

upon receipt of said at least one ATM returning message for setting up (ATMRMC2), resp. for releasing (ATMRRELMC2) said connection, by said ATM network (ATM), at least one following ATM message of said ATM signalling
30 protocol for setting up (ATMFMC2) , resp. releasing (ATMFRELMC2) said connection is generated by and transmitted from said ATM network (ATM)

towards said network termination apparatus (ANT), whereby the steps as described in the characteristic part of claim 8 are repeated by replacing said at least one ATM message by said at least one following ATM message, said at least one corresponding local area network message by at least one following corresponding local area network message, and said at least one returning ATM message of said ATM signalling protocol for setting up, resp. releasing said connection by at least one next returning ATM message of said ATM signalling protocol for setting up, resp. releasing, said connection.

10 13. First terminal (DLAN1) for being connected to a local area network (LAN), said local area network being coupled with an ATM network via a network termination apparatus (ANT),
characterised in that
said first terminal (DLAN1) includes first connection request means
15 (CRM1), adapted to generate a connection set-up request (LANRC1) or resp. a connection release request (LANRELRC1) local area network message for requesting to set up, or resp. to release, a connection between said first terminal and a second terminal (DATM) connected to said ATM network, said first terminal (DLAN1) being further adapted to transmit said connection set-up request
20 (LANRC1), or resp. said connection release request (LANRELRC1), local area network message to a predetermined terminal (DLAN3) connected to said local area network.

25 14. Predetermined terminal (DLAN3) for being connected to a local area network (LAN), via a local area network interface means (ILAN) included within said predetermined terminal (DLAN3), said local area network (LAN) being coupled with an ATM network (ATM) via a network termination apparatus (ANT),
characterised in that
said predetermined terminal (DLAN3) further includes ATM signalling
30 protocol means (UNIP) adapted to terminate an ATM signalling protocol.

15. Predetermined terminal (DLAN3) according to claim 14
characterised in that

said ATM signalling protocol means (UNIP) is further adapted to, upon receipt of a connection set-up request local area network message (LANRC1) or
5 upon receipt of a connection release request local area network message (LANRELRC1), for setting up, or resp., for releasing, a connection between a first terminal (DLAN1) connected to a local area network (LAN), and a second terminal (DATM) connected to an ATM network, to generate and transmit at least one ATM message of said ATM signalling protocol for setting up (ATMMC1), or
10 resp. for releasing (ATMRELMC1), said connection.

16. Predetermined terminal (DLAN3) according to claim 14
characterised in that,

said predetermined terminal (DLAN3) further includes third connection
15 request means (CRM3) coupled to said ATM signalling protocol means (UNIP) and adapted to generate a connection set-up request message or a connection release request message, for requesting to set up, or resp. to release, a connection between said predetermined terminal (DLAN3) and a second terminal (DATM) connected to an ATM network, said ATM signalling protocol means
20 (UNIP) thereby being adapted to generate and transmit at least one ATM message of said ATM signalling protocol for setting up, or resp. for releasing, said connection, upon receipt of said connection set-up request message or said connection release request message.

25 17. Predetermined terminal (DLAN3) according to claim 14,
characterised in that

said ATM signalling protocol means (UNIP) is further adapted to generate, upon receipt of at least one corresponding local area network message being at least one converted ATM message of said ATM signalling protocol for
30 setting up (ATMRMC1, ATMMC2), or resp. for releasing (ATMRRELMC1, ATMRELMC2) a connection between a first terminal (DLAN1) connected to said

local area network (LAN) and a second terminal (DATM) connected to said ATM network (ATM), at least one next ATM message of said ATM signalling protocol for setting up, (ATMFMC1, ATMRMC2), or resp. for releasing (ATMFRELMC1, ATMRRELMC2) said connection.

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18. Predetermined terminal (DLAN3) according to claim 14,
characterised in that

said ATM signalling protocol means (UNIP) is further adapted to generate, upon receipt of at least one ATM message of said ATM signalling
10 protocol for setting up (ATMRMC1, ATMMC2), or resp. for releasing
(ATMRRELMC1, ATMRELMC2) a connection between a first terminal (DLAN1)
connected to said local area network (LAN) and a second terminal (DATM)
connected to said ATM network (ATM), at least one next ATM message of said
ATM signalling protocol for setting up, (ATMFMC1, ATMRMC2), or resp. for
15 releasing (ATMFRELMC1, ATMRRELMC2) said connection.

19. Predetermined terminal (DLAN3) according to claim 14,
characterised in that

said predetermined terminal (DLAN3) includes first conversion means (CM1)
20 coupled between said ATM signalling protocol means (UNIP), and said local area
network interface means (ILAN), and adapted to receive and to convert at least
one ATM message (ATMMC1, ATMFMC1, ATMRELMC1, ATMFRELMC1,
ATMRMC2, ATMRRELMC2) generated by said ATM signalling protocol means
(UNIP), to at least one corresponding local area network message (LANMC1,
25 LANFMC1, LANRELMC1, LANFRELMC1, LANRMC2, LANRRELMC2), for further
transmission via said local area network interface means (ILAN) to said network
termination means (ANT).

20. Predetermined terminal (DLAN3) according to claim 19
30 characterised in that

said first conversion means is further adapted to convert local area network messages received from said local area network interface means (ILAN) into corresponding ATM messages for delivery to said ATM signalling protocol means (UNIP).

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21. Predetermined terminal (DLAN3) according to claim 14 characterised in that

said predetermined terminal (DLAN3) further includes demultiplexer means (DM) having an input terminal (DMin) coupled to said local area network interface means (ILAN), said demultiplexer means including a first demultiplexer means output terminal (DMout1) coupled to said ATM signalling protocol means (UNIP), said demultiplexer means (DM) being adapted to distinguish, from incoming local area network messages (LANRMC1, LANRC1, LANMC2, LANRELRC1, LANRRELMC1, LANRELMC2) received at said input terminal (DMin), at least one connection set-up request (LANRC1) or resp. at least one connection release request (LANRELRC1) local area network message, for requesting to set up, resp. to release (LANRELRC1) a connection between a first terminal (DLAN1) connected to said local area network (LAN) and a second terminal (DATM) connected to said ATM network (ATM), said demultiplexer means (DM) further being adapted to forward said at least one connection set-up request (LANRC1), resp. said at least one connection release request (LANRELRC1) message, via said first output terminal (DMout1) of said demultiplexer means (DM), to said ATM signalling protocol means (UNIP).

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22. Predetermined terminal according to claims 20 and 21 characterised in that

- said demultiplexer means (DM) further includes a second output terminal (DMout2) which is coupled to said first conversion means (CM1),
- said demultiplexer means (DM) is further adapted to distinguish, from incoming local area network message messages (LANRMC1, LANRC1, LANMC2, LANRELRC1, LANRRELMC1, LANRELMC2), received at said input

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terminal (DMin), at least one local area network message (LANRMC1, LANMC2, LANRELMC1, LANRELMC2) being at least one converted message of at least one message of said ATM signalling protocol for setting up, (ATMRMC1, ATMMC2), or resp. releasing (ATMRRELMC1, ATMRELMC2) a connection
5 between a first terminal (DLAN1) connected to said local area network (LAN) and a second terminal (DATM) connected to said ATM network (ATM), said demultiplexer means (DM) further being adapted to forward said at least one local area network message (LANRMC1, LANMC2, LANRELMC1, LANRELMC2) via said second output terminal (DMout2) of said demultiplexer means (DM) to
10 said first conversion means (CM1), whereby

- said first conversion means (CM1) is further adapted to re-convert said at least one local area network message received from said second output terminal (DMout2) of said demultiplexer means (DM) into said at least one ATM message of said ATM protocol, for setting up (ATMRMC1, ATMMC2), resp. for
15 releasing (ATMRRELMC1, ATMRELMC2) said connection, for further delivery to said ATM signalling protocol means (UNIP).

23. Network termination apparatus (ANT) for being coupled between a local area network (LAN) and an ATM network (ATM), said network termination
20 apparatus (ANT) including second conversion means (CM2) adapted to convert back and forth between local area network messages and ATM messages, said network termination arrangement (ANT) further including means adapted to analyse successive incoming data packets transmitted from at least one terminal (DLAN1,DLAN3) connected to said local area network (LAN), to detect therefrom
25 whether a connection between said at least one terminal (DLAN1,DLAN3) and a second terminal (DATM) connected to said ATM network is to be set up or resp. to be released, and to generate, depending on the result of said detection, a connection set-up request or resp. a connection release request message requesting to set up, resp. to release said connection,
30 characterised in that

said connection set-up request, or resp. said connection release request message, is a local area network message, whereby said means is further adapted to transmit said connection set-up request, resp. said connection release request message towards a predetermined terminal (DLAN3) connected to said
5 local area network (LAN) and adapted to terminate an ATM signalling protocol.

24. Network termination apparatus according to claim 23
characterised in that
said at least one terminal (DLAN1,DLAN3) connected to said local
10 area network corresponds to said predetermined terminal (DLAN3).

25. Network termination apparatus (ANT) coupled between a local area network (LAN) and an ATM network (ATM), said network termination apparatus (ANT) including second conversion means (CM2) adapted to convert
15 back and forth between local area messages and ATM messages,
characterised in that
said second conversion means (CM2) is further adapted to distinguish amongst incoming local area network messages, at least one local area network message being at least one converted message of an ATM signalling protocol for
20 setting up, or resp. for releasing a connection between a terminal (DLAN1,DLAN3) connected to said local area network (LAN) and a second terminal (DATM) connected to said ATM network (ATM), to reconvert said at least one local network message into at least one ATM message of said ATM signalling protocol for setting up, or resp., releasing said connection, for further
25 forwarding to said ATM network (ATM).

26. Network termination apparatus (ANT) coupled between a local area network (LAN) and an ATM network (ATM), said network termination apparatus (ANT) including second conversion means (CM2) adapted to convert
30 back and forth between local area network messages and ATM messages, said second conversion means (CM2) further being adapted to distinguish amongst

incoming ATM messages, at least one ATM message (ATMRMC2) generated by an ATM network, of an ATM signalling protocol for setting up, or resp, releasing a connection between a first terminal (DLAN1) connected to said local area network (LAN) and a second terminal (DATM) connected to said ATM network
5 (ATM),

characterised in that

said second conversion means (CM2) is further adapted to convert said at least one ATM message of said ATM signalling protocol for setting up, or resp, releasing said connection, into at least one corresponding local area
10 network message for setting up, or resp. releasing said connection, for further forwarding, to a predetermined terminal (DLAN3) connected to said local area network (LAN), and which is adapted to terminate an ATM signalling protocol.

27. Network termination apparatus (ANT) according to claim 26
15 characterised in that

said first terminal (DLAN1) corresponds to said predetermined terminal (DLAN3).

28. Network termination apparatus according to claim 23 or 24
20 characterised in that

said second conversion means (CM2) is further adapted according to claims 25 and 26.

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